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REMARKS

This paper is responsive to the examiner interview references above and below, and is responsive in any other manner indicated below.

EXAMINER INTERVIEW ACKNOWLEDGED

This paper is responsive to the examiner interview conducted 13 September 2005, by and between (as indicated on the Interview Summary document) Primary Examiner Hoa Q. Pham, Applicant's foreign representative Tsuneo Ogawa, inventor Shunji Maeda, and attorney Paul J. Skwierawski. More particularly, any foregoing amendments may include amendments discussed during, or resultant from, the examiner interview, and the following includes a reiteration of discussions/arguments had during the examiner interview.

STATEMENT OF SUBSTANCE

The statements made by the Examiner within the 13 September 2005 Interview Summary document regarding the interview are accurate and adopted by Applicant as statements of substance regarding the interview.

PAPERS LOST WITHIN USPTO

It is respectfully noted that the 25 February 2005 Office Action did not consider Applicant's 29 April 2004 Supplemental Preliminary Amendment. The Examiner indicated that such paper is not within the USPTO's records, and thus was not considered. For the sake of completeness of the USPTO's records, a copy of Applicant's 29 April 2004 Supplemental Preliminary Amendment is provided herewith

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together with a copy of a USPTO date-stamped postcard receipt evidencing the filing of the same with the USPTO on 29 April 2004.

At the examiner interview, the Examiner indicated that Applicant's subsequent 25 May 2005 Amendment also was not within the USPTO's records, and thus has not been considered. For the sake of completeness of the USPTO's records, a copy of Applicant's 25 May 2005 Amendment is provided herewith together with a copy of a USPTO date-stamped postcard receipt evidencing the filing of the same with the USPTO on 25 May 2005.

It is respectfully requested that such prior papers be entered into the USPTO records. However, it is respectfully submitted that both such prior papers are being superceded by this present paper (and especially the claims of this present paper), and thus, the Examiner does not have to significantly review the prior papers, i.e., the prior claims are moot in view of the present paper.

PENDING CLAIMS

Claims 43-67 were pending, under consideration and subjected to examination in the Office Action. Appropriate claims have been amended and added herein to adjust a clarity and/or focus of Applicant's claimed invention. That is, such changes are unrelated to any prior art or scope adjustment, and are simply refocused claims in which Applicant is present interested. At entry of this paper, Claims 43-67 are pending for consideration and examination in the application.

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ALL REJECTIONS UNDER 35 USC §§102 AND 103 - TRAVERSED

All 35 USC rejections based upon Chadwick et al. (5,085,517) are respectfully traversed. However, such rejections have been rendered obsolete by the present clarifying amendments to Applicant's claims, and accordingly, traversal arguments are not appropriate at this time. However, Applicant respectfully submits the following to preclude renewal of any such rejections against Applicant's clarified claims.

All descriptions of Applicant's disclosed and claimed invention, and all descriptions and rebuttal arguments regarding the applied prior art, as previously submitted by Applicant in any form, are repeated and incorporated herein by reference. Further, all Office Action statements regarding the prior art rejections are respectfully traversed. As additional arguments, Applicant respectfully submits the following.

It is well known in the manufacturing art, that regardless of how many consistency controls are implemented, resultant manufactured items will always slightly differ from one another. For example, if 100 automobiles are built at the same time on the same manufacturing line, each automobile will vary slightly from one another. Such differences are attributable, for example, to variations in the manufacturing line over time (e.g., varying voltages, temperatures, etc.).

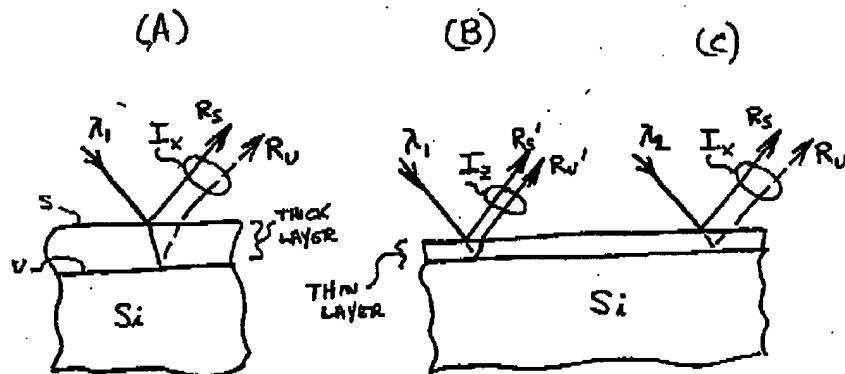
Inconsistencies likewise occur in manufactured semiconductor products. For example, a thickness of layers formed on a substrate tend to vary from item-to-item (e.g., wafer-to-wafer, die-to-die).

Applicant's disclosed and claimed invention is directed toward arrangements for inspecting specimens, e.g., semiconductor wafers, dies, LCD panels, etc. For an

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understanding of an important part of Applicant's invention, attention is directed to the simplistic sketch (A) shown below:



Shown in sketch (A) is a partial cross-section of a silicon wafer or die having a thick layer disposed thereon, with the layer having a surface S and an undersurface U. During inspecting, if a light of a first wavelength λ_1 is directed onto the surface, a portion of the light will reflect (shown by R_s) from the surface S, and another portion will refract through the layer and reflect (shown by R_u) from the surface S. The combination of R_s and R_u represents a reflectance, whereas interaction between R_s and R_u represents an interference I_x . Applicant found that substantially preventing interference I_x of lights reflected from the specimen by the illuminating, resulted in a best inspection image. However, Applicant's found that while use of light of a first wavelength λ_1 might substantially prevent interference I_x on one specimen, it might not prevent interference on a next specimen.

More particularly, sketch (B) is a partial cross-section of same type of silicon wafer or die product, but having differing layer, i.e., a thin layer disposed thereon due to manufacturing variation. If the light of the first wavelength λ_1 is again directed onto the surface, it was found by the inventors that differing levels of reflectance

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(combination of R_s' and R_u') and interference I_z will occur due to the thickness variation. Such differing interference is disadvantageous in that, while a good inspection imaging result might occur from with respect to the first sketch (A) "thick" layer example, a degraded imaging result occurs with respect to the sketch (B) "thin" layer example in that interference is no longer prevented.

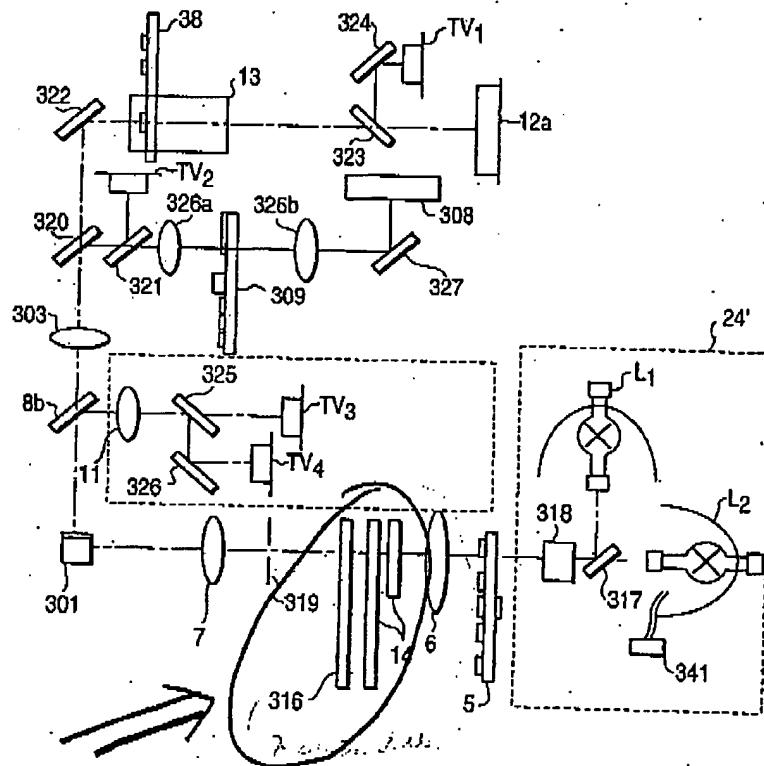
Through further analysis/experimentation, the inventors found that while the reflectance and interference varied with varying layer thicknesses, the inventors further found that reflectance and interference could also be varied by varying a wavelength λ of the light applied to the specimen. That is, referencing sketch (C), if light of a carefully-selected second wavelength λ_2 was instead directed onto the thin-layer surface, it was found by the inventors that the same levels of reflectance (combination of R_s and R_u) and interference I_x as occurred with respect to the sketch (A) "thick" layer example could be made to be substantially duplicated with respect to the sketch (C) "thin" layer example, i.e., the interference I_x could again be substantially prevented. Such is important in that a good inspection imaging result can be obtained from specimen-to-specimen (e.g., wafer-to-wafer, die-to-die).

Accordingly, an important part of Applicant's disclosed and claimed invention is the selection of light components having a predetermined wavelength range for substantially preventing interference of lights reflected from the specimen. Such feature is supported in Applicant's specification, for example, at page 19, line 20, through page 20, line 7. In practice, Applicant accomplishes the same using a selectable filter. For example, Applicant's FIG. 33 (reproduced ahead) contains a selectable filter unit 316 (see circled area) which allows selection of wavelengths from the broadband light source 24'.

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FIG. 33



In terms of claim language, Applicant's independent claim 43, for example, contains the feature/limitations: "wherein light components having a predetermined wavelength range are selected from the light emitted from the light source for substantially preventing interference of lights reflected from the specimen by the illuminating, and are used to illuminate the specimen." Other ones of Applicant's claims have similar or analogous limitations.

Turning now to precluding the previously-applied Chadwick et al. '517 patent, Chadwick et al. does not disclose (or suggest) Applicant's invention, in that Chadwick et al. nowhere discloses any type of teachings toward preventing

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interference. Instead, Chadwick et al. appears mainly directed to utilizing wavelengths between 500 and 575 nm to improve a reflectivity of copper wiring lines during inspection imaging (see, for example, Chadwick et al.'s column 12, lines 15-42).

By constantly utilizing wavelengths between 500-575 nm, Chadwick et al.'s arrangement would be plagued by the above-described example of using the same wavelength with both the sketch (A) and sketch (B) thicknesses. That is, an interference and/or reflectance of Chadwick et al.'s imaging would vary drastically as specimens with varying layer thicknesses were encountered. In short, Chadwick et al. appears mainly concerned with maximizing reflections from a surface of copper lines, without any regard to layer thicknesses.

In order to properly support a §102 anticipatory-type rejection, any applied art reference must disclose each and every limitation of any rejected claim. The applied art does not adequately support a §102 anticipatory-type rejection because, at minimum, such applied art does not disclose (or suggest) the above-discussed limitations of Applicant's claims.

As a result of all of the foregoing, it is respectfully submitted that the applied art would not support a §102 anticipatory-type rejection (or §103 obviousness-type rejection) of Applicant's claims. Accordingly, reconsideration and withdrawal of the Chadwick et al. '517 rejection(s), and express written allowance of all of Applicant's presently-pending claims, are respectfully requested.

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RESERVATION OF RIGHTS

It is respectfully submitted that any and all claim amendments and/or cancellations submitted within this paper and throughout prosecution of the present application are without prejudice or disclaimer of any scope or subject matter. Further, Applicant respectfully reserves all rights to file subsequent related application(s) (including reissue applications) directed to any/all previously claimed limitations/features which have been subsequently amended or cancelled, or to any/all limitations/features not yet claimed, i.e., Applicant continues (indefinitely) to maintain no intention or desire to dedicate or surrender any limitations/features of subject matter of the present application to the public.

EXAMINER INVITED TO TELEPHONE

The Examiner is invited to telephone the undersigned at the local D.C. area number of 703-312-6600, to discuss an Examiner's Amendment or other suggested action for accelerating prosecution and moving the present application to allowance.

CONCLUSION

In view of the foregoing amendments and remarks, Applicant respectfully submits that the claims listed above as presently being under consideration in the application are in condition for allowance. Accordingly, early allowance of such claims is respectfully requested.

whatever other extent is actually required, Applicant respectfully petitions for an extension of time under 37 CFR §1.136. Please charge any actual and

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appropriate deficiency in fees to Deposit Account No. 01-2135 (as Case No. 501.33745CX4), and please credit any refund of fees to such Deposit Account.

Respectfully submitted,



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Enclosures:

- copy of 29 April 2004 Supplemental Preliminary Amendment
- copy of 29 April 2004 date-stamped postcard filing receipt
- copy of 25 May 2005 Amendment
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